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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,841	02/09/2004	Frank Jansen	M03A210	9767
7590	03/09/2006		EXAMINER	
Ira Lee Zebrak The BOC Group, Inc. Legal Services - Intellectual Property 575 Mountain Ave. Murray Hill, NJ 07974			MOORE, KARLA A	
			ART UNIT	PAPER NUMBER
			1763	
			DATE MAILED: 03/09/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/774,841	JANSEN, FRANK	
	Examiner Karla Moore	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on 19 December 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 8-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 09 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0204</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group II in the reply filed on 19 December 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 1-7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to the nonelected invention of Group II, there being no allowable generic or linking claim.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is insufficient antecedent basis for the limitation – "the oxidizing agent".

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 8, 13, 15-16 and 18-19 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2002/0043216 A1 to Hwang et al.
7. Hwang et al. disclose a method for preparing a coated substrate, comprising: providing an atomic layer deposition arrangement comprising an evacuable chamber (304), at least two atomic layer deposition sources (308a to 308d) within the chamber, wherein each atomic layer deposition chamber

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source is isolated from the remainder of the chamber (using partition wall, 310), conveying the substrate to the first of the at least one deposition source, exposing the substrate to the at least one deposition source, conveying the substrate to the next atomic layer deposition source, and exposing the substrate to said next atomic layer deposition source. See paragraphs 44-45 and 50.

8. With respect to claim 13, the first atomic layer deposition source is a source of trimethylaluminum (paragraph 46).

9. With respect to claim 15, the first atomic layer deposition source is a source of trimethylaluminum and the next atomic layer deposition source is an oxidizing agent/water vapor (paragraph 46).

10. With respect to claim 16, a substrate source chamber (302) is further provided.

11. With respect to claims 18 and 19, an inert gas/argon is introduced into the evacuable chamber (paragraph 46).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15-16 and 18-19 in view of U.S. Patent No. 5,300,189 to Kokaku et al.

14. Hwang et al. disclose the method substantially as claimed and as described above. Additionally, Hwang et al. further disclose that processing speed is of concern.

15. However, Hwang et al. fail to teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber.

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16. Kokaku et al. teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without uselessly complicating construction of the processing apparatus (Figure 3, abstract and column 5, rows 60 through column 6, row 1).

17. It would have been obvious to one of ordinary skill in the art to have provided a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without uselessly complicating construction of the processing apparatus in Hwang et al. in order to form a film with high efficiency without uselessly complicating construction of the processing apparatus as taught by Kokaku et al.

18. Claims 11-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15-16 and 18-19 in view of U.S. Patent Publication No. 2004/0194691 to George et al.

19. Hwang et al. disclose the invention substantially as claimed and as described above.

20. However, Hwang et al. fail to teach using an ALD method for forming a barrier coating layer on a polymer substrate which has a thickness of 400 angstroms to 50 angstroms.

21. George et al. teach using an ALD method to form a barrier coating layer with a thickness of 400 angstroms to 50 angstroms on a polymer substrate, such as a polyamide, for the purpose of imparting desirable properties to the polymer substrate (paragraphs 17 and 53-54).

22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an ALD method to form a barrier coating layer on a polymer substrate with a thickness of 400 angstroms to 50 angstroms in Hwang et al. in order to impart desirable properties to a polymer substrate as taught by George et al.

23. Claim 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15-16 and 18-19 in view of U.S. Patent Publication No. 2003/0207032 to Ahn et al.
24. Hwang et al. disclose the invention substantially as claimed and as described above.
25. However, Hwang et al. fail to teach the oxidizing agent selected from the group of oxygen, nitrous oxide and ozone.
26. Ahn et al. disclose use of oxygen, nitrous oxide and ozone as oxidizing agents along with trimethylaluminum in an ALD process for producing a coating of aluminum oxide for the purpose of forming a highly uniform ultra-thin layer (abstract, paragraphs 5 and 30).
27. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided oxygen, nitrous oxide or ozone as an oxidizing agent in Hwang et al. in order to form a highly uniform ultra-thin layer as taught by Ahn et al.
28. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15-16 and 18-19 in view of U.S. Patent No. 5,300,189 to Kokaku et al. and U.S. Patent Publication No. 2004/0194691 to George et al.
29. Hwang et al. disclose the method substantially as claimed and as described above. Additionally, Hwang et al. further disclose that processing speed is of concern.
30. However, Hwang et al. fail to teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber.
31. Kokaku et al. teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without

uselessly complicating construction of the processing apparatus (Figure 3, abstract and column 5, rows 60 through column 6, row 1).

32. It would have been obvious to one of ordinary skill in the art to have provided a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without uselessly complicating construction of the processing apparatus in Hwang et al. in order to form a film with high efficiency without uselessly complicating construction of the processing apparatus as taught by Kokaku et al.

33. Hwang et al. and Kokaku et al. disclose the invention substantially as claimed and as described above.

34. However, Hwang et al. and Kokaku et al. fail to teach using an ALD method for forming a barrier coating layer on a polymer substrate which has a thickness of 400 angstroms to 50 angstroms.

35. George et al. teach using an ALD method to form a barrier coating layer with a thickness of 400 angstroms to 50 angstroms on a polymer substrate, such as a polyamide, for the purpose of imparting desirable properties to the polymer substrate (paragraphs 17 and 53-54).

36. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an ALD method to form a barrier coating layer on a polymer substrate with a thickness of 400 angstroms to 50 angstroms in Hwang et al. and Kokaku et al. in order to impart desirable properties to a polymer substrate as taught by George et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Karla Moore  
Patent Examiner  
Art Unit 1763  
1 March 2006